WHAT IS CLAIMED IS:

1. A cooling jacket for cooling a stator of a dynamoelectric machine, the jacket comprising:

an annular inner shell having a generally cylindric inner surface defining a cavity for receiving said stator so that the stator is in heat transfer contact with said inner surface, the inner shell having a central longitudinal axis and an outer surface;

an annular outer shell for nesting coaxial alignment with the inner shell to define an annular gap between the inner and outer shells; and

a plurality of fins formed on the outer surface of the inner shell and projecting radially outward from the outer surface into the annular gap between the inner and outer shells, said fins defining at least one flow path for conveying a fluid through the cooling jacket;

wherein at least one of the fins is positioned on the inner shell to extend in a direction circumferentially on the inner shell and substantially normal to the longitudinal axis so that the fluid flow path is directed generally circumferentially of the cooling jacket.

2. A cooling jacket as set forth in claim 1 wherein said fins are configured such that said flow path includes a first segment for flow of fluid in a first circumferential direction, a second segment for flow of fluid in a second circumferential direction opposite to the first direction, and a reversal region

between said first and second flow path segments for turning flow from the first direction to the second direction.

3. A cooling jacket as set forth in claim 2 wherein the cooling jacket has only one reversal region so that fluid makes only one reversal turn in the jacket.

4. A cooling jacket as set forth in claim 2 wherein said first and second flow path segments each comprises at least two parallel flow channels.

5. A cooling jacket as set forth in claim 4 further comprising a distribution region upstream in the flow of the first flow path segment for distributing fluid between said channels of the first flow path segment.

6. A cooling jacket as set forth in claim 5 wherein the distribution region comprises intakes to said channels formed by fins having leading edges in an offset arrangement.

7. A cooling jacket as set forth in claim 1 wherein the inner shell has opposite longitudinal ends, and wherein the cooling jacket has an inlet and an outlet positioned at one of the longitudinal ends.

8. In combination, a cooling jacket as set forth in claim 1 and an endshield of said dynamoelectric machine, the endshield comprising a housing adapted for engagement with the inner shell and having a fluid flow passage for fluid communication with the cooling jacket.

9. A combination as set forth in claim 8 wherein the endshield further comprises transfer ports for connecting the flow passage of the endshield with the flow path of the cooling jacket in fluid communication.

10. A combination as set forth in claim 9 wherein the inner shell of the cooling jacket has opposite longitudinal ends, and wherein the cooling jacket further comprises a fluid inlet and an outlet positioned at one of the longitudinal ends, said transfer ports being positioned for alignment with the inlet and outlet of the cooling jacket.

11. A combination as set forth in claim 8 wherein the endshield further comprises a surface for mounting electronic components, the fluid flow passage of the endshield extending generally adjacent the surface to thereby cool said electronic components.

12. A liquid-cooled dynamoelectric machine comprising:

a stator having a longitudinal axis;

a rotor and a shaft mounting the rotor for rotation in the stator about said axis; and

two endshields for connection at opposite longitudinal ends of the stator, at least one of the endshields having a surface for holding electronic components; and

an internal flow passage generally adjacent said surface of the endshield for conveying a coolant to remove heat from the surface and thereby cool said electronic components.

13. A dynamoelectric machine as set forth in claim 12 wherein said flow passage is within the endshield to convey coolant through the endshield.

14. A dynamoelectric machine as set forth in claim 13 wherein the flow passage is generally annular around the endshield.

15. A dynamoelectric machine as set forth in claim 12 further comprising a cooling jacket for removing heat from the machine, the jacket having a flow path therethrough in fluid communication with said flow passage and serially arranged therewith for conveying coolant.